

Subchapter 8 REFERENCED STANDARDS

5:21-8.1 Referenced Standards

The following is a list of the standards referenced in this chapter. The standards are listed by the promulgating agency of the standard, the standard identification, the edition of the standard, the title of the standard, and the section(s) of this code that reference the standard. The standards listed in this chapter are not adopted or to be used in their entirety unless the rules specifically so state. The use of the standards included in this chapter is limited to those specific areas of the standard for which this chapter directs the user to the standard.

American Association of State Highway and Transportation Officials (AASHTO), Suite 249, 444 North Capitol Street, N.W., Washington, D.C. 20001. Tel. (202) 624-5800 or (800) 231-3475.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|--|---|
| M33-93 | Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type) | Figure 4.1 (Concrete Vertical Curb) |
| M43-88 | Standard Specification for Sizes of Aggregate for Road and Bridge Construction | 5:21-6.2(c)6.ii(5) |
| M114-91 | Building Brick (Solid Masonry Units Made from Clay or Shale) | 5:21-6.2(c)11.vii(1) |
| M213-92 | Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) | Figure 4.1 (Concrete Vertical Curb) |
| M252-94 | Standard Specification for Corrugated Polyethylene Drainage Tubing | 5:21-7.3(d)3 |
| M294-94 | Standard Specification for Corrugated Polyethylene Pipe, 12- to 36-in. Diameter | 5:21-7.3(d)3 |
| T99-94 | Standard Method of Test for the Moisture-Density Relations of Soils Using a 5.5-lb. (2.5 kg) Rammer and a 12-in. (305 mm) Drop | 5:21-7.3(d)3 |
| 2001 Edition | A Policy on Geometric Design of Highways and Streets | 5:21-4.19(b)6 5:21-4.20(a) 5:21-4.20(b) |
| 1993 Edition | Guide for Design of Pavement Structures | Figure 4.2 Figure 4.3 Figure 4.4 Figure 4.5 Table 4.9 |

| AASHTO continued | | |
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| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
| 1999 Edition | AASHTO Guide for the Development of Bicycle Facilities | 5:21-4.2(e) Table 4.3 5:21-4.18(b)1 |

American Concrete Pipe Association, Suite 105, 8618 Westwood Center Drive, Vienna, Virginia 22182. Tel. (703) 821-1990. **Concrete Pipe Association of New Jersey**, Post Office Box 1013, Dover, New Jersey 07802-1013. Tel. (201) 328-8723.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--|--|--|
| Minimum Cover (Minimum Depth of Coverage over Concrete Pipe) | Published in Concrete Pipe Association of New Jersey Newsletter, "The Pipeline," September/October 1985; table derived from information provided by the American Concrete Pipe Association | Table 7.4 |

American Society for Testing and Materials (ASTM), 100 Barr Harbor, West Conshohocken, Pennsylvania 19428. Tel. (610) 832-9500.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--------------------------------------|---|--|
| A48-92 | Standard Specification for Gray Iron Castings | 5:21-6.2(c)11.v 5:21-7.4(f) |
| A536-84 | Standard Specification for Ductile Iron Castings | 5:21-6.2(c)11.v |

| ASTM continued | | |
|--------------------------------------|---|--|
| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
| C33-93 | Standard Specification for Concrete Aggregates | 5:21-6.2(c)6.ii(5) |
| C76-90 | Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe | 5:21-6.2(c)6.i 5:21-7.3(d)1.i |
| C150-92 | Standard Specification for Portland Cement | 5:21-6.2(c)11.vii(2) |
| C443-85a (1990) | Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets | 5:21-6.2(c)11.iv 5:21-7.3(d)1.iii |
| C478-90b | Standard Specification for Precast Reinforced Concrete Manhole Sections | 5:21-6.2(c)11.iv 5:21-7.4(d) |
| C507-90 | Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe | 5:21-7.3(d)1.ii |
| C700-91 | Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated | 5:21-6.2(c)6.iv |
| C877-91 | Standard Specification for External Sealing Bands for Noncircular Concrete Sewer, Storm Drain, and Culvert Pipe | 5:21-7.3(d)1.iv |
| C923-89 | Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals | 5:21-6.2(c)11.vi 5:21-7.4(d) |
| D448-86 | Standard Classification for Sizes of Aggregate for Road and Bridge Construction | 5:21-6.2(c)6.ii(5) |
| D1784-90 | Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds | 5:21-6.2(c)6.ii(1) |

| ASTM continued | | |
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| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
| D1785-91 | Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120 | 5:21-6.2(c)8 Table 7.6 |
| D2241-89 | Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series) | 5:21-6.2(c)8 Table 7.6 |
| D2321-89 | Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications | 5:21-6.2(c)6.ii(2) 5:21-6.2(c)6.ii(4) 5:21-6.2(c)6.ii(5) 5:21-7.3(d)3 |
| D2444-92 | Standard Test Method for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight) | 5:21-6.2(c)6.ii(2) |
| D3034-89 | Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings | 5:21-6.2(c)6.ii |
| D3139-89 | Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals | 5:21-5.3(j)3 |
| D3212-92 | Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals | 5:21-6.2(c)6.ii(3) |
| D3350-93 | Standard Specification for Polyethylene Plastics Pipe and Fittings Materials | 5:21-7.3(d)3 |
| F477-90 | Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe | 5:21-6.2(c)6.ii(3) |
| F679-89 | Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings | 5:21-6.2(c)6.ii |
| F789-89 | Standard Specification for Type PS-46 and Type PS-115 Poly(Vinyl Chloride) (PVC) Plastic Gravity-Flow Sewer Pipe and Fittings | 5:21-6.2(c)6.ii |

| ASTM continued | | |
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| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
| F794-91 | Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter | 5:21-6.2(c)6.ii |
| F949-92 | Standard Specification for Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings | 5:21-6.2(c)6.ii |

American Society of Civil Engineers (ASCE), 345 East 47th Street, New York, New York 10017. Tel. (212) 705-7496 or (800) 548-2723.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--|--|--|
| ASCE Manual on Engineering Practice No. 60 1982 | Gravity Sanitary Sewer Design and Construction | 5:21-6.2(a) 5:21-6.2(c)10 5:21-6.2(c)11 |
| WEF Manual of Practice FD-20 ASCE Manuals and Reports of Engineering Practice No. 77 (1993) © 1992 | Design and Construction of Urban Stormwater Management Systems | 5:21-7.3(e) |

American Water Works Association (AWWA), 6666 West Quincy Avenue, Denver, Colorado 80235. Tel. (303) 794-7711 or (800) 926-7337.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--------------------------------------|--|--|
| ANSI/AWWA C104/A21.4-90 | American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water | 5:21-5.3(j)1 5:21-6.2(c)6.iii 5:21-7.3(d)2 |
| ANSI/AWWA C105/A21.5-93 | American National Standard for Polyethylene Encasement for Ductile- Iron Pipe Systems | 5:21-5.3(j)1 5:21-6.2(c)6.iii |
| ANSI/AWWA C110/A21.10-93 | American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. through 48 In. (75 mm through 1200 mm) for Water and Other Liquids | 5:21-5.3(j)1 |
| ANSI/AWWA C111/A21.11-90 | American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings | 5:21-5.3(j)1 5:21-6.2(c)6.iii 5:21-7.3(d)2 |
| ANSI/AWWA C115/A21.15-88 | American National Standard for Flanged Ductile-Iron Pipe with Threaded Flanges | 5:21-5.3(j)1 5:21-6.2(c)6.iii 5:21-7.3(d)2 |
| ANSI/AWWA C150/A21.50-91 | American National Standard for the Thickness Design of Ductile-Iron Pipe | 5:21-5.3(j)1 5:21-7.3(d)2 |
| ANSI/AWWA C151/A21.51-96 | American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids | 5:21-5.3(j)1 5:21-6.2(c)6.iii 5:21-7.3(d)2 |
| ANSI/AWWA C300-89 | AWWA Standard for Reinforced Concrete Pressure Pipe, Steel- Cylinder Type, for Water and Other Liquids | 5:21-5.3(j)2 |
| ANSI/AWWA C301-92 | AWWA Standard for Prestressed Concrete Pressure Pipe, Steel- Cylinder Type, for Water and Other Liquids | 5:21-5.3(j)2 |

| AWWA continued | | |
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| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
| ANSI/AWWA C303-95 | AWWA Standard for Concrete Pressure Pipe, Bar Wrapped, Steel-Cylinder Type | 5:21-5.3(j)2 |
| ANSI/AWWA C500-86 | AWWA Standard for Gate Valves for Water and Sewerage Systems | 5:21-5.3(e) |
| ANSI/AWWA C502-85 | AWWA Standard for Dry-Barrel Fire Hydrants | 5:21-5.4(b)1 |
| ANSI/AWWA C504-94 | AWWA Standard for Rubber-Seated Butterfly Valves | 5:21-5.3(e) |
| ANSI/AWWA C509-94 | AWWA Standard for Resilient Seated Gate Valves for Water Supply Service | 5:21-5.3(e) |
| ANSI/AWWA C600-93 | AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances | 5:21-7.3(d)2 |
| ANSI/AWWA C900-89 | AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution | 5:21-5.3(j)3 |
| ANSI/AWWA C901-88 | AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. through 3 in., for Water Service | 5:21-5.3(j)5 |
| ANSI/AWWA C905-88 | AWWA Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe Nominal Diameters 14 in. through 36 in. | 5:21-5.3(j)3 |
| C909-98 | Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 in. through 12 in. (100 mm through 300 mm), for Water Distribution | 5:21-5.3(j)3 5:21-6.2(c)8 |
| AWWA M31 © 1992 Second Edition | Manual of Water Supply Practices -- Distribution System Requirements for Fire Protection | 5:21-5.2(e) |

Asphalt Institute, Research Park Drive, Post Office Box 14052, Lexington, Kentucky 40512-4052. Tel. (606) 288-4960.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|----------------------------------|--|---|
| MS-1, 8th Edition August 1970 | Thickness Design – Full-Depth Asphalt Pavement Structures for Highways and Streets | Table 4.7 |

Institute of Transportation Engineers (ITE), Suite 410, 525 School Street, S.W., Washington, D.C. 20024-2729. Tel. (202) 554-8050.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|---|--|---|
| © 1989 | Residential Street Design and Traffic Control | 5:21-1.5(d)2 |
| Pub. No. IR-016C 6th Edition First Printing 1997 | Trip Generation | 5:21-4.1(b) Table 4.1 |

Insurance Services Office, Inc. (ISO), 545 Washington Boulevard, Jersey City, New Jersey 07310-1686. Tel. (201) 469-2000 or (800) 888-4476.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|----------------------------------|---|
| © 1980 Edition 6-80 | Fire Suppression Rating Schedule | 5:21-5.2(e) |

National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02269. Tel. (617) 770-3000.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|---|---|
| Standard 291-1995 | Fire Flow Testing and Marking of Hydrants | 5:21-5.4(b)2 |
| Standard 1963-1993 | Fire Hose Connections | 5:21-5.4(b)1 |

New Jersey Department of Agriculture, State Soil Conservation Committee, John Fitch Plaza, PO Box 330, Trenton, New Jersey 08625. Tel. (609) 292-5540.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|---|--|
| April 1987 | Standards for Soil Erosion and Sediment Control in New Jersey | 5:21-7.1(d)9.iii 5:21-7.1(h) 5:21-7.2(a) 5:21-7.2(d) 5:21-7.3(b) 5:21-7.5(c)3 5:21-7.5(f)1.v 5:21-7.5(f)4.x 5:21-7.8(d)2.iii |

New Jersey Department of Environmental Protection (NJDEP), Bureau of Revenue, Maps and Publications Sales Office, 428 East State Street, PO Box 438, Trenton, New Jersey 08625. Tel. (609) 777-1038.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--------------------------------------|--|--|
| April 2004 | New Jersey Stormwater Best Management Practices Manual | 5:21-7.1(f) 5:21-7.8(a) 5:21-7.8(e) |
| August 1995 | Pinelands Comprehensive Management Plan (New Jersey Pinelands Commission) | 5:21-5.3(a) 5:21-6.2(a) |
| Revised September 1995 | Technical Manual for Land Use Regulation Program (DEP's Bureaus of Inland and Coastal Regulations, Stream Encroachment Permits) | Table 7.2 |

New Jersey Department of Transportation (NJDOT), PO Box 600, 1035 Parkway Avenue, Trenton, New Jersey 08625-0600. Tel. (609) 530-2000.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--------------------------------------|---|--|
| November 2001 | Standard Specifications for Road and Bridge Construction | 5:21-4.17(b) Figure 4.2 Figure 4.3 Figure 4.4 Figure 4.5 Table 4.8 5:21-6.2(c)6.ii(5) 5:21-7.4(a) |
| November 2001 | Roadway Design Manual | 5:21-7.2(c)2.ii(2) 5:21-7.2(c)3 Figure 7.1 Figure 7.2 |
| April 1996 | Bicycle-Compatible Roadways and Bikeways Planning Design Guidelines | 5:21-4.18(b)1 5:21-7.4(b)1 |

New Jersey Society of Municipal Engineers (NJSME), 196 West State Street, Trenton, New Jersey 08608. Tel. (609) 393-0102.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|---------------------------------|--|---|
| Second Edition November 1991 | Asphalt Handbook for County and Municipal Engineers | Table 4.7 |

Portland Cement Association, 5420 Old Orchard Road, Skokie, Illinois 60076-0726. Tel. (847) 966-6200.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|---|---|
| © 1984 | Thickness Design for Concrete Highway and Street Pavements | Table 4.7 |

United States Army Corps of Engineers, Water Resources Support Center, The Hydrologic Engineering Center, 609 Second Street, Davis, California 95616. Tel. (916) 756-1104.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--------------------------------------|---------------------------------------|---|
| [†] Version 2.2 May 2003 | HEC-HMS Hydrologic Modeling System | 5:21-7.2(c)1.v 5:21-7.2(d) |

United States Department of Agriculture (USDA), Natural Resources Conservation Service,
 Post Office Box 2890, Washington, D.C. 20013. Tel. (202) 205-0026. Documents can be
 downloaded from the following Internet address:
<http://www.info.usda.gov/CED/Default.cfm?xSbj=ALL&xAud=24>.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--|--|---|
| April 2002 | National Engineering Handbook, Part 630 | 5:21-7.2(c)4 5:21-7.8(d)4.vii(2) |
| Technical Release No. 20 PB83-223768 May 1982 | Computer Program for Project Formulation -- Hydrology | 5:21-7.2(c)1.iv 5:21-7.2(d) |
| Technical Release No. 55 PB87-101580/AS 2nd Edition June 1986 | Urban Hydrology for Small Watersheds | 5:21-7.2(a) 5:21-7.2(c)1.iii 5:21-7.2(c)3 5:21-7.2(c)7 5:21-7.2(d) 5:21-7.2(e) |
| Technical Release No. 56 PB85-239622 December 1974 | Guide for Design and Layout of Vegetative Wave Protection for Earth Dam Embankments | 5:21-7.8(d)4.ii(5) |
| Technical Release No. 69 PB85-245165 February 1983 | Riprap for Slope Protection Against Wave Action | 5:21-7.8(d)4.ii(5) |
| PB96-111570 June 1, 1990 | Engineering Field Handbook, Chapter 2 -- Estimating Runoff and Peak Discharges (corrected version) | 5:21-7.2(c)4 |
| PB85-175164/LT July 1, 1984 | Engineering Field Handbook, Chapter 6 -- Structures | 5:21-7.8(d)4.vii(2) |
| PB 243 644/AS PB 243 645/LT PB 279 759/LT | National Engineering Handbook, Section 5 -- Hydraulics Section 11 -- Drop Spillways Section 14 -- Chute Spillways | 5:21-7.2(c)4 5:21-7.8(d)4.vii(2) |

United States Department of Commerce (USDoC), Bureau of the Census, Washington, D.C.
20233. Tel. (202) 482-2000.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--|-------------------------------|--|
| 1975-1980 (Data tabulated by Rutgers University) | Public Use File -- New Jersey | Table 4.4 Table 5.1 |

United States Department of Transportation (USDOT), Federal Highway Administration
(FHWA), 820 First Street, S.E., Washington, D.C. 20002. Tel. (301) 322-4961.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|--|---|--|
| [†] Hydraulic Engineering Circular No. 15 Report No. FHWA-EPD-86-111 PB86-184835 October 1975 | Design of Stable Channels with Flexible Linings | 5:21-7.8(d)2.iii |
| [†] Report No. FHWA-TS-79-225 PB83-259903 August 1979 | Design of Urban Highway Drainage, The State of the Art | Table 7.3 |
| [†] Second Edition FHWA-NHI-01-021 August 2001 | HEC 22 – Urban Drainage Design Manual | 5:21-7.2(c)2.ii(1) |
| [†] Hydraulic Design Series No. 5 Report No. FHWA-IP-85-15 PB86-196961 September 1985 | Hydraulic Design of Highway Culverts | 5:21-7.3(d) |
| [‡] 1988 Edition | Manual on Uniform Traffic Control Devices for Streets and Highways | 5:21-4.13(a) |

Urban Land Institute (ULI), Suite 500 West, 1025 Thomas Jefferson Street, N.W., Washington, D.C. 20007-5201. Tel. (800) 321-5011.

| STANDARD REFERENCE NUMBER | TITLE | REFERENCED IN N.J.A.C. SECTION NUMBER |
|------------------------------|---|---|
| ULI-ASCE-NAHB 1975 | Residential Storm Water Management: Objectives, Principles, and Design Considerations | Table 7.5 |

[†] Documents obtainable from the **National Technical Information Service**, Springfield, Virginia 22161. Tel. (703) 605-6000 or (800) 553-6847.

[‡] Documents obtainable from the **United States Government Printing Office**, Superintendent of Documents, PO Box 371954, Pittsburgh, Pennsylvania 15250-7954. Tel. (202) 512-1800 or (866) 512-1800.